New Patent Claims

1. Current sensor working in accordance with the compensation principle with a primary winding (2) through which the current to be measured flows, creating a magnetic field,

a secondary winding (4), through which compensation current flows, which generates a magnetic field compensating the primary winding, whereby the primary winding and the secondary winding combined form a converter with certain resonance frequencies,

a terminating resistor (19) connected in a series to the secondary winding,

sensor means (7), which are exposed to the resulting magnetic field of the primary and secondary coils,

a booster circuit (8 through 12), which is down-streamed to the secondary winding (4) at the input, and which feeds the compensation current to the secondary winding (4) via the terminating resistor (19) at the output, whereby the compensation current is pulse-duration modulated with a timing frequency above the resonance frequency (25) of the converter, and

a low-pass filter arrangement (17, 18) for stabilizing the pulse-duration modulated compensation current, which is down-streamed to the booster circuit (8 through 12), consists of inductances (20, 21) and capacitances (22, 23), which possesses a filter frequency threshold below the resonance frequency (25) of the converter, and below the timing frequency (29) of the booster circuit, as well as excessive resonance, whereby

the excessive resonance of the low-pass filter arrangement (17, 18) is damped by an RC element (40) connected in parallel to the secondary winding (4) and the terminating resistor (19).

2. Current sensor in accordance with one of the claim 1, in that the secondary winding (4) is divided into a multitude of secondary coils (5, 6), whereby the excessive voltages occurring between the secondary coils (5, 6) is limited by limiting means (44, 45).

3. Current sensor in accordance with claim 2, in that the limiting means are Zener diodes (44), which are connected in a series, polarized in reverse order, and which are connected in parallel to the secondary coils (5, 6).

4. Current sensor in accordance with one of the claims 1 through 3, in that the booster circuit has at least one reverse timing power amplifier (11, 12).

5. Current sensor in accordance with claim 4, in that the terminating resistor (19) and the secondary winding (4) are connected via a bridge circuit between both reverse timing power amplifiers (11, 12).